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RECREATION FORMULA FOR THE
ACCEPTANCE OR REJECTION OF
CROWN LAND PARCLES AROUND
LAKESHORES

BY: L. STICKEL

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RECREATION FORMULA FOR THE ACCEPTANCE
OR REJECTION OF CROWN LAND PARCELS
AROUND LAKESHORES

Prepared By

Planning Division

Alberta Department of the Environment




Department of the Environment
Library



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SUMMARY

The purpose of this report is to clarify certain aspects of previous statements regarding financial assistance for lake management projects which enhance recreational opportunities around lakes. In Position Paper No. 6 (Alberta Department of the Environment, 1972a) it was stated that cost-sharing arrangements would be based on the percentage of linear feet of publicly owned land around a lakeshore. In this report a formula is developed which would differentiate between public land with good recreational capability and public land which has poor recreational capability. It is suggested that only those lands around lakeshores which meet certain criteria based on moderate to high recreational quality should be included in the determination of the percentage of publicly owned linear feet around a lakeshore. This would ensure that the province would be funding water management projects on the basis of suitable public recreation lands capable of supporting careful recreational development to meet the needs of many Albertans.

ACKNOWLEDGEMENTS

This report was prepared by L. Stickel under the supervision of C. L. Primus.

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RECREATION FORMULA FOR THE ACCEPTANCE OR REJECTION OF
PUBLIC LAND PARCELS AROUND LAKESHORES

Introduction

This report has been prepared to formalize certain aspects of cost-sharing arrangements for water management projects which seek to enhance the recreational capability of lakes and their associated shorelands. The primary purpose of any cost-sharing arrangement is to distribute the costs of a project among those who benefit from the project. As stated earlier, "A clearly defined cost-sharing arrangement, with specified criteria under which cost-sharing projects will be considered, will result in more equitable treatment for groups concerned with or involved in developing water management projects" (Alberta Department of the Environment, 1972a:i). Under the Alberta Water Management Plan it was decided to adopt a policy of cost-sharing based on specified percentage contributions.

In October 1972 a position paper on financial assistance for lake management projects which enhance recreational opportunities around lakes specified the conditions under which cost-sharing arrangements would be made (Alberta Department of the Environment, 1972b). Lakes were classified into three categories based on the percentage of publicly owned shoreline land around them:

Category I - If 25% or more of the shoreline land is publicly owned, the water resource management and development cost will be paid 100% by the government.

Category II - If less than 25% of the shoreline lands are publicly owned, government will contribute assistance up to a maximum of 75% of costs, according to a sliding scale on a pro-rata public vs. private land

basis. Right-of-way for development will be provided by the local authority or interest group.

Category III - If the shoreline land is 100% privately owned, the Government of the Province of Alberta sees no cause for expenditure of public funds unless other public benefits can be clearly demonstrated. However, lakes may be reclassified upward into either Category I or II if the requisite amount of land is donated to the crown or purchased by it in the public interest, and may thus qualify for some form of assistance.

Need For Further Clarification

The above classification is based simply upon a tabulation of the percentage of linear feet around a lakeshore which is publicly owned. However, not all lands around a lakeshore, crown owned or privately owned, are suitable for or capable of supporting public recreation. This report therefore refines the earlier shoreline percentage designation by selecting those lands around lakeshores which are of fairly high recreational quality for inclusion in the shoreline percentage. If cost-sharing arrangements are to be based on the premise that those who benefit should pay, then clearly those lands around lakeshores which are of good recreational quality should be considered in the public's best interest.

A formula has been devised which defines those lands around a lakeshore which are suitable for public recreation, and hence for inclusion in any determination of cost-sharing arrangements. The purpose of the formula is to supplement the earlier lake classification statement by differentiating between lands which are suitable for public recreation and those which are

either not suitable for public recreation or are suitable for very dispersed recreational activities. With the use of this formula the provincial funding of water management projects which enhance recreation lands around lakeshores is still based on the percentage of publicly owned linear feet around a lake. However, the public lands included in this percentage determination must meet a certain standard of recreational quality. This means that some public lands around lakes will not be eligible for inclusion in the public shoreline percentage unless they are altered in some manner (as will be suggested later) so that they become suitable.

It is important to note that the formula is to be used only for the determination of the eligibility of certain land parcels around lakeshores and not for the automatic determination of project priorities. Nor does use of the formula imply that any type of recreational facilities necessarily should be present or developed on public lands. As clearly stated in Position Paper No. 6 on Financial Assistance for Lake Management, it must be established that there is a need for any water project development and that the development of any lake is in the public interest. Moreover, the designation of project priorities rests wholly with the Government of the Province of Alberta. The basic purpose of this formula is to ensure that any lands included in the determination of shoreline percentages are suitable for high quality public recreation usage.

Criteria to Establish Eligibility

Before any parcel of land around a lakeshore can be included in the determination of a publicly owned shoreline percentage it must pass a number of criteria:

1. *The lake under consideration should be at least 40 acres in area. A lake must have at least this area to warrant Canada Land Inventory shoreline classification.*
2. *The parcels of land to be considered must be 10 acres or larger in size. It is not in the best public interest to have small parcels of crown land scattered around a lakeshore. The provision of public access to many small areas would be much more expensive than access to a few larger areas.*
3. *A minimum average depth requirement of 700 feet must be met before a piece of shoreline land is deemed acceptable. This requirement is based on a definition used by the United States Bureau of Outdoor Recreation (1967) of an effective foot of beach. It is realized that in many instances the purchase of land around lakeshore entails buying many additional acres far beyond the shoreline itself. Land purchased by local authorities in excess of that needed to meet any shoreline requirements for various cost-sharing arrangements could be resold, turned over to another government agency, or kept by local authorities if desired. The purpose of this depth requirement is not to encourage the retention of minimum acreage, but to designate the minimum depth of a parcel of land if it is to be eligible for inclusion in a public shoreline percentage. Other agencies or authorities may require different depths or areas for their specific projects and they should be consulted if recreational development projects are under consideration.*
4. *Any parcels of land to be considered must be available for public access. Crown lands with long-term leases, especially institutional leases, are not available for utilization by*

general public. Only those crown lands which can readily be opened to general public entry should be eligible for inclusion in a public shoreline percentage.

It should also be recognized that lands with high waterfowl capabilities (Canada Land Inventory Waterfowl Capability), such as migration route stops, should be developed with great care. Often the use of these lands for public recreation conflicts with their capability as waterfowl staging areas. Shoreland units with high waterfowl capability as a rule have poor intensive recreation capabilities, but if managed correctly they can provide excellent areas for dispersed recreational activities.

Suggested Formula

If a parcel of land around lakeshore meets all of the above requirements then it must pass one further test of acceptability. A checklist of weighting factors has been devised which primarily tests the recreational capability of a shoreline land parcel and the type of public access provided to that land. Land which has the capability to attract and sustain intensive recreational use and which has direct good quality public access is obviously in the best interest because it can benefit a greater number of individuals. Water management projects which will enhance this type of land warrant a high degree of public financial support.

On the other end of the continuum is land which can only support limited numbers of people in dispersed recreational activity and which has poor public access or none at all. This type of land may be important to a few recreationists, but it does not warrant the expenditure of public funds.

The suitability of land for recreational purposes has been measured by the Canada Land Inventory and ranked accordingly in seven classes of

recreational capability. Class one land possesses a very high natural capability to support intensive recreational use, while class seven has a low capability and may simply provide open space (Department of Forestry and Rural Development, 1967). Since the Canada Land Inventory recreational capability classifications were uniformly applied throughout the Province of Alberta it was felt that they should be utilized in any consideration of recreation potential as a criterion of public land acceptability. The checklist therefore gives various weightings to the different land classes:

1. Positive points for lands classed three and above
2. Negative Points for lands classed five and below
3. A neutral rating (zero) for class four lands

Other factors which are included are:

4. Positive points for direct public access
5. Negative points for indirect access
6. Positive points for Provincial Park status, as these areas are in the public interest
7. One-half positive point for land restricted to public recreational usage (leases granted only for recreation)
8. One-half negative point for unrestricted land rights (leases granted for uses other than recreation)

Each piece of publicly owned or prospective publicly owned land is evaluated by the use of the checklist. A parcel of land that falls into several Canada Land Inventory recreation capability classes must be divided into the various C.L.I. classes and each piece of land within these classes evaluated separately. Some consideration will be given to land continuity as determined by individual governmental agencies. All the points which a piece of land has been given are then accumulated, with

any negative points being subtracted from the positive. If the negative total is larger than the positive then the piece of land receives an overall negative rating after subtracting the positive points. If the overall point total is positive or zero then the parcel of public land is acceptable and the number of shoreline feet should be included in the determination of the publicly owned shoreline percentage for cost-sharing arrangements.

If the overall point total is negative then some compensation must be made for the poorer quality land. There are various options available to improve the weighting of a parcel of land:

1. Public access could be provided, or if already available but of poor quality, could be upgraded to good quality (for example, an all weather road or a paved road).
2. Any leases which may be hindering public recreational usage of certain land areas, such as a grazing or cultivation lease, could be terminated.
3. Provincial park status could be obtained for suitable blocks of publicly owned land.
4. Certain mechanical alternatives can be used to upgrade the Canada Land Inventory recreational classification, especially where beaches are concerned (for example, topsoil removal and the importation of sand).
5. The provision of acreage beyond the 700 foot average depth requirement can compensate for the poorer quality of the land as more land can sustain more numbers of people where the overall density capability is low. The scale shown in Table 1 can be used to determine the area of land which must be added beyond the 700 foot average depth. Additional acreage can be purchased so that the added land area brings the parcel up to

the standard of acceptability and it can then be included in any shoreline percentage determinations.

If one of the above alternatives does not bring the weighting number to zero or above then the parcel of land should not be included in an acceptable public shoreline percentage.

TABLE NO. 1

PROPORTION OF A LAND PARCEL WHICH HAS 700 FOOT AVERAGE DEPTH THAT MUST BE ADDED OR BE PRESENT BEYOND THE 700 FOOT REQUIREMENT TO BE ACCEPTABLE

Negative Point Total From Land Parcel Checklist	Percentage of the initial land parcel area which must be added or be present beyond the 700' average depth requirement
- .5	14%
-1.0	28%
-1.5	42%
-2.0	66%
-2.5	80%
-3.0	94%
-3.5	unacceptable

When each parcel of land around a lake has been evaluated according to the checklist the shoreline area of all parcels which are ultimately acceptable is added up. On the basis of the acceptable land around a lakeshore a percentage of the shoreline which is publicly owned and in the public's best interest is obtained and cost-sharing arrangements can then be computed. It should be noted that all determinations of parcel size/depth and shoreline measurements (linear feet) should be made on the basis of full supply level (F.S.L.) and any prospective rise in lake levels. This also applies to any changes which lake level rises may make in regards to Canada Land Inventory recreation capability ratings. In this respect

it may be necessary to perform a number of shoreline calculations if the lake level has not been specifically determined.

The checklist form and ratings are presented in Table 2.

TABLE NO. 2
RECREATIONAL FORMULA

EXPLANATION AND
ASSUMPTION

In order to determine the acceptability of any land parcel around a lakeshore for the purpose of including it in a calculation of the public shoreline percentage for determining cost-sharing arrangements each parcel has to be evaluated on the basis of its Canada Land Inventory Recreation Capability Classifications. If a parcel of land falls into various C.L.I. classes then the land within each class must be rated separately. The following evaluation procedure applies to parts or all of land parcels which fall into separate C.L.I. recreation capability classes.

STEP 1 PRIOR CRITERIA WHICH LAND PARCELS MUST MEET BEFORE LAND PARCEL CHECKLIST CAN BE APPLIED

- | | | |
|---|-----|----|
| a) The lake must be forty acres or larger in size | YES | NO |
| b) A single parcel of acceptable land should be ten acres or larger in size | YES | NO |
| c) A single parcel of land should have an average depth of 700 feet or more | YES | NO |
| d) Each parcel of land must be available for general public access | YES | NO |

If the land parcel within the single C.L.I. recreation capability class has four 'yes' answers to the above criteria then it is eligible for checklist evaluation. If the answer to (a) is 'no' then the lake parcel is not acceptable. If the only 'no' answers are either (b) or (c) then the land parcel can be made eligible for checklisting by adding additional public acreage to meet the requirements. If the answer to (d) is 'no' then the parcel is not acceptable unless general public access is provided.

STEP 2 LAND PARCEL CHECKLIST

Factors	Negative Points	Positive Points
1. Canada Land Inventory Class (Recreation Capability)		
1		3
2		2
3		1
4	0	0
5	1	
6	2	
7	3	
2. Access to the land parcel		
Direct to the site		
- good quality (all weather road)		1
- poor quality (unimproved dirt)		$\frac{1}{2}$
Indirect to the site		
- good potential for access	$\frac{1}{2}$	
- poor potential for access	1	
3. Other factors		
Provincial Park Status		1
Restricted Land Usage Rights		$\frac{1}{2}$
Unrestricted Land Usage Rights	$\frac{1}{2}$	

The point totals for each characteristic of the particular land parcel are added up for each column, negative and positive. If the total is positive then the parcel and its shoreline should be included in any determination of public shoreline percentage. If the total is negative then some compensation will have to be made for the poorer recreation quality such as a larger acreage area than the minimum acreage (shoreline linear feet x 700 foot minimum depth). Depending on the option chosen the following step may be applied.

STEP 3 ONE OPTION FOR NEGATIVELY WEIGHTED LAND PARCELS ONLY:

Proportion of a land parcel which has 700 foot average depth that must be added or already be present beyond the 700 foot depth requirement to be acceptable.

Negative Point Total From Land Parcel Checklist	Percentage of the Initial Land Parcel Area which must be added or already be present beyond the 700 foot depth requirement
- .5	14%
-1.0	28%
-1.5	42%
-2.0	66%
-2.5	80%
-3.0	94%
-3.5	unacceptable

If the parcel of land already meets the additional acreage requirement then it is acceptable, but if it does not then the additional needed acreage must be added before the parcel becomes acceptable. If the additional acreage does not become publicly owned then any negatively rated parcel of land is not acceptable.

APPENDIX A

EXAMPLE OF ADDITIONAL ACREAGE REQUIREMENTS FOR NEGATIVELY RATED LAND

In some cases a piece of land which is being purchased or is already publicly owned is of sufficient size that no additional acreage is necessary. However, for the sake of example it will be assumed that the land parcel is not of sufficient size.

A piece of land around a lakeshore has received a negative rating of -1.0. It has an average depth of 785 feet and has a linear shoreline of 1,600 feet. At the minimum depth requirement (700 feet x the number of linear shoreline feet) this piece of land has an area of:

$$1,120,000 \text{ square feet} = 25 \text{ acres}$$

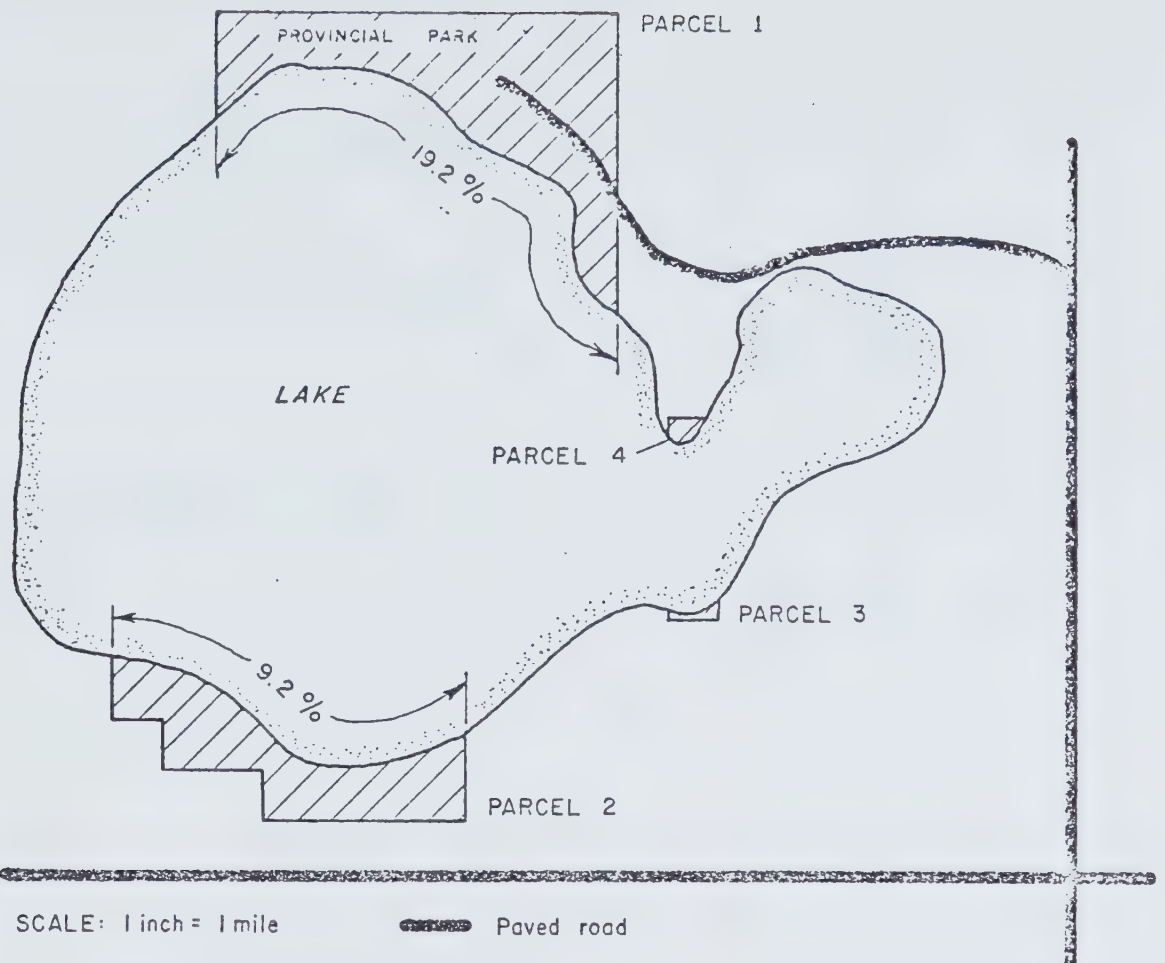
The area of that parcel which is additionally required (beyond the minimum area requirement shown above) at a negative rating of -1.0 is 28% of 25 acres or 7.8 acres. This parcel of land actually has an average depth of 785 feet and contains:

$$1,256,000 \text{ square feet} = 28.4 \text{ acres}$$

In this case an additional 4.4 acres (32.8 acres required - 28.4 acres present) of land must be added to this parcel before its shoreline can be included in the determination of the public shoreline percentage for cost-sharing arrangements.

APPENDIX B

AN EXAMPLE OF FORMULA APPLICATION



- 1) Total Lake Shoreline - 14 miles or 73,920 feet
 - percentage of shoreline needed to qualify as provincial project 3.5 miles or 18,480 feet
- 2) Canada Land Inventory Recreation Capability - 4SBKY (whole lake)
- 3) Parcels One and Two meet the size and depth requirements while Parcels Three and Four do not.
- 4) Parcel One - Weighting number of +2.5 (acceptable)
 - Shoreline of parcel one is 2.7 miles or 14,256 feet
 - Percentage of total lake shoreline covered is 19.2%
- 5) Parcel Two - Weighting number of -1.0 (unacceptable)
 - Shoreline of parcel two is 1.3 miles or 6,864 feet
 - Minimum acreage necessary (with 700' depth) is 110 acres
 - WITH ACREAGE OPTION
 - Additional acreage necessary to qualify at a -1.0 weighting is 30.5 acres making total acreage necessary 140.8 acres
 - Actual parcel size is 416 acres so the parcel is acceptable for inclusion in the determination of the public shoreline percentage
- 6) Together Parcels One and Two account for 21,120 linear shoreline feet or 28.4% of the lake's total shoreline. This lake would therefore qualify for 100% provincial project funding.

Checklist factors affecting the weighting of Parcels One and Two

Parcel One

C.L.I. Class 4 (recreational capability)	0
Paved direct public access	+1
Provincial park status	+1
Restricted Land usage rights (no leases)	<u>+½</u>
Total	+2½

Parcel Two

C.L.I. Class 4 (recreational capability)	0
No direct access, but good potential for access	-½
Grazing lease	<u>-½</u>
Total	-1

REFERENCES

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Stickel, L.

Recreation formula for the
acceptance or rejection of
crown land parcels around
lakeshores.

